

Application No.: 09/824,931

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended) A method for synthesizing polymers on a substrate using at least one mask having a plurality of reticle areas, wherein each reticle area comprises a plurality of reticles, each of which is associated with a same synthesis area on the substrate, the method comprising the steps of:

(a) ~~for each reticle area, sequentially aligning two or more of the plurality of reticles~~ a reticle of a that reticle area with the associated synthesis area; and

(b) ~~for each sequential alignment,~~ coupling monomers on the substrate at locations determined by the aligned ~~reticles~~ reticle; and

(c) sequentially repeating steps (a) and (b) for at least two of the plurality of reticles of the reticle area thereby enabling formation of polymers on the substrate from each of the sequentially coupled monomers;

wherein the plurality of reticle areas are contiguously arranged on the mask; and the plurality of reticles within each of the reticle areas are contiguously arranged within the reticle area.

Claim 2 (Original) The method of claim 1, wherein:

the plurality of reticles in each reticle area are arranged in a same pattern.

Claim 3 (Original) The method of claim 2, wherein:

the pattern comprises rows and columns of reticles.

Claim 4 (Currently Amended) The method of claim 2, wherein:

each of the plurality of reticles in each reticle area has approximately a same height H and has approximately a same width W; and

step (a) comprises ~~sequentially~~ aligning by translating the at least one mask with respect to the substrate by a ~~sequence of steps~~, wherein the translation distance at ~~each step~~ is determined by the height H or the width W.

Claim 5 (Original) The method of claim 4, wherein:
the translating is done by moving the substrate while the mask remains stationary.

Claim 6 (Original) The method of claim 1, wherein:
the monomers are selected from the group consisting of nucleotides, amino acids or saccharides.

Claim 7 (Original) The method of claim 1, wherein:
step (b) further comprises coupling a same monomer for each of the aligned reticles.

Claim 8 (Original) The method of claim 1, wherein:
step (b) further comprises directing light through the aligned reticles to de-protect the locations for coupling.

Claim 9 (Currently Amended) A system for synthesizing polymers on a substrate, comprising:

at least one mask having a plurality of reticle areas, wherein each reticle area comprises a plurality of reticles, each of which is associated with a same synthesis area on the substrate;

an aligner that, ~~for each reticle area, sequentially aligns to align two or more of the plurality of reticles a reticle of a that reticle area~~ with the associated synthesis area;
and

a synthesizer that, ~~for each sequential alignment~~, causes monomers to be coupled on the substrate at locations determined by the aligned ~~reticles-reticle~~;

wherein the aligner sequentially aligns at least two of the plurality of reticles of the reticle area to enable formation of polymers on the substrate from each of the

Application No.: 09/824,931

monomers sequentially coupled by the synthesizer; and further wherein the plurality of reticle areas are contiguously arranged on the mask, and the plurality of reticles within each of the reticle areas are contiguously arranged within the reticle area.

Claim 10 (Original) The system of claim 9, wherein:
the plurality of reticles in each reticle area are arranged in a same pattern.

Claim 11 (Original) The system of claim 10, wherein:
the pattern comprises rows and columns of reticles.

Claim 12 (Currently Amended) The system of claim 10, wherein:
each of the plurality of reticles in each reticle area has approximately a same height H and has approximately a same width W; and
the aligner ~~further is constructed and arranged to sequentially align~~ aligns by translating the at least one mask with respect to the substrate ~~by a sequence of steps,~~ wherein the translation distance ~~at each step~~ is determined by the height H or the width W.

Claim 13 (Original) The system of claim 12, wherein:
the translating is done by moving the substrate while the mask remains stationary.

Application No.: 09/824,931

Claim 14 (Original) The system of claim 9, wherein:

the monomers are selected from the group consisting of nucleotides, amino acids or saccharides.

Claim 15 (Currently Amended) The system of claim 9, wherein:

the synthesizer ~~further is constructed and arranged to couple~~ couples a same monomer for each of the aligned reticles.

Claim 16 (Currently Amended) The system of claim 9, wherein:

the synthesizer ~~further is constructed and arranged to direct~~ directs light through the aligned reticles to de-protect the locations for coupling.

Claims 17-26 (Cancelled)

27. (Currently Amended) A computer program product for synthesizing polymers on a substrate using at least one mask having a plurality of reticle areas, wherein each reticle area comprises a plurality of reticles, each of which is associated with a same synthesis area on the substrate, the product comprising a computer usable medium storing control logic that, when executed on a computer system, performs a method comprising the steps of:

(a) ~~for each reticle area, sequentially aligning two or more of the plurality of reticles~~ a reticle of a that reticle area with the associated synthesis area; and

(b) ~~for each sequential alignment, coupling monomers on the substrate at locations determined by the aligned reticles~~ reticle; and

(c) sequentially repeating steps (a) and (b) for at least two of the plurality of reticles of the reticle area thereby enabling formation of polymers on the substrate from each of the sequentially coupled monomers;

wherein the plurality of reticle areas are contiguously arranged on the mask, and the plurality of reticles within each of the reticle areas are contiguously arranged within the reticle area.

Application No.: 09/824,931

Claim 28 (Original) The product of claim 27, wherein:
the monomers are selected from the group consisting of nucleotides, amino acids
or saccharides.

Claims 29-51 (Cancelled)